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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/579,169	05/25/2000	Victor Firoiu	2204/196	7292
2101	7590	09/23/2004	EXAMINER	
BROMBERG & SUNSTEIN LLP 125 SUMMER STREET BOSTON, MA 02110-1618			PHAN, THAI Q	
			ART UNIT	PAPER NUMBER
			2128	

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/579,169		FIROIU ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Thai Q. Phan		2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05/25/2000.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-92 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-92 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 May 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>Feb. and Sep. 2002</u>  | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

This Office Action is in response to patent application S/N: 09/579,169, filed on 05/25/2000. Claims 1-92 are pending in the Action.

#### ***Drawings***

This application is filed with informal drawings of poor drawings quality. Formal drawings are required to improve the drawing quality. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings.

#### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on Feb. 22 and Sept. 23, 2002 have been received and considered by the examiner. The copies of considered IDS statements are enclosed in this Office Action.

#### ***Claim Objections***

Claim 39 is objected to because the lines are closely and not well connected together, making reading and entry of amendments difficult. Substitute claims with lines one and one-half or double spaced on good quality paper are required. See 37 CFR 1.52(b).

Claim 64 is objected due to its incompleteness.

Claim 34 is objected due to its improper dependency.

#### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 38 recites the limitation "the equation" in line 1. There is insufficient antecedent basis for this limitation in the claim.
3. Claim 35 recites the limitation "the inverse" in line 1. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).
3. Claims 1-92 are rejected under 35 U.S.C. 102(e) as being anticipated by Siu et al, US Patent no. 6,252,851 B1.

As per claims 1, 5, 43-44, and 57, Siu anticipates a method and system for dynamically modeling a queue function including a control queue function with feature limitations very similar to the claimed invention (Summary of the Invention). According to Siu, the method and system includes means and steps:

Determining a queue function based upon predetermined system traffic conditions (col. 12, line 16-67),

And determining the control function based upon the queue function (cols. 13-16).

As per claims 2 and 45, Siu anticipates random early detection in queue control function.

As per claim 3, Siu anticipates a bounded discontinuity as claimed (col. 15, lines 3-65).

As per claim 4, Siu anticipates queue size estimate including minimum and maximum queue size estimate. It includes two linear segment as claimed.

As per claim 6, Siu anticipates packet drop and amount of data packet drop from the buffer (col. 3, line 52 to col. 4, line 5).

As per claims 7-13, Siu anticipates network nodes, TCP network, data acknowledgement in the network, drop rate, etc. (col. 4, lines 6-43, col. 6, lines 29-67).

As per claims 14, Siu anticipates a method and system for estimating an average queue size for a node having a buffer with a queue wherein the node resides on a link similar to the claimed invention. According to Siu, the queue size estimate includes means and steps:

Determining a round trip transmission time for the link, and

Determining the average queue size, maximum and minimum queue size at the intersection point of a node congestion control function and a queue law function, which is based in part on the round trip transmission time (col. 9, line 24 to col. 15, line 65).

Siu also anticipates linear estimate queue size based on traffic flow, queue management, network version or line, and acknowledgement, and drop rate or data drop probability for random detection as claimed.

As per claims 15-17, Siu anticipates data packet flows through the queue, packet size, and data drop rate as claimed.

As per claims 18,19, 25-30, and 58-59, Siu anticipates a method and system for estimating an average queue size for a node having a buffer with a queue wherein the node resides on a link similar to the claimed invention. According to Siu, the queue size estimate includes means and steps:

Determining a round trip transmission time for the link, and

Determining the average queue size, maximum and minimum queue size, drop rate at the intersection point of a node congestion control function and a queue law function, which is based in part on the round trip transmission time (col. 9, line 24 to col. 15, line 65).

As per claims 20-23, Siu anticipates linear estimate queue size based on traffic flow, queue management, network version or line, and acknowledgement or random detection as claimed.

As per claims 24 and 31-33, Siu anticipates drop rate to avoid traffic congestion, transmission delay, queue sizes, etc.

As per claim 35, Siu anticipates step of evaluating the maximum queue law function using the average queue size, which is related to queue law as claimed.

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As per claim 36, Siu anticipates a method for estimating an average queue size for a node having a buffer with a queue wherein the node resides on a link similar to the claimed invention. According to Siu, the queue size estimate includes steps

Determining a round trip transmission time for the link, and

Determining the average queue size, maximum and minimum queue size at the intersection point of a node congestion control function and a queue law function, which is based in part on the round trip transmission time (col. 9, line 24 to col. 15, line 65).

Such queue control includes determining buffer size as claimed.

As per claims 37 and 40, Siu anticipates a method for estimating an average queue size for a node having a buffer with a queue wherein the node resides on a link similar to the claimed invention. According to Siu, the queue size estimate includes steps

Determining a sampling period for queue size estimate,

Determining a round trip transmission time for the link, and

Determining the average queue size, maximum and minimum queue size at the intersection point of a node congestion control function and a queue law function, which is based in part on the round trip transmission time (col. 9, line 24 to col. 15, line 65).

As per claim 39, Siu anticipates a method for estimating an average queue size for a node having a buffer with a queue wherein the node resides on a link similar to the claimed invention. According to Siu, the queue size estimate includes steps

Determining a maximum queue law function based upon maximum expected traffic conditions,

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Determining a round trip transmission time for the link, and

Determining the average queue size, maximum and minimum queue size at the intersection point of a node congestion control function and a queue law function, which is based in part on the round trip transmission time (col. 9, line 24 to col. 15, line 65).

As per claim 41, Siu anticipates maximum queue law function is determined based on current traffic conditions within the network.

As per claim 42, Siu anticipates a weighting factor such as roundtrip delay for use in calculating queue size of a buffer in a node of the network for packet transmission. The method of modeling queue size control function includes steps  
Determining a sampling period for queue size estimate,

Determining a round trip transmission time for the link, and

Determining the average queue size, maximum and minimum queue size at the intersection point of a node congestion control function and a queue law function, which is based in part on the round trip transmission time (col. 9, line 24 to col. 15, line 65).

As per claims 46-53, Siu anticipates the limitations as claimed for controlling queue functions.

As per claims 54, Siu anticipates a method and system for estimating an average queue size for a node having a buffer with a queue wherein the node resides on a link similar to the claimed invention. According to Siu, the queue size estimate includes means and steps:

Determining a sampling period for queue size estimate,

Determining a round trip transmission time for the link, and



Determining the average queue size, maximum and minimum queue size at the intersection point of a node congestion control function and a queue law function, which is based in part on the round trip transmission time (col. 9, line 24 to col. 15, line 65).

As per claims 55-56, Siu anticipates queue service or management policy, queue size or threshold values as queue control parameters as claimed.

As per claim 60, Siu anticipates current traffic flow conditions.

Similarly, claims 61-92 are directed to a computer program product implemented in a computer readable medium to perform steps in the method claims above. Claims 61-92 are thus rejected under the same rationales as set forth.

### ***Conclusion***

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. US patent no. 5,805,577, issued to Jain et al, on Sept. 1998
2. US patent no. 6,192,406 B1, issued to Ma et al, on Feb. 2001
3. US patent no. 6,324,165 B1, issued to Fan et al, on Nov. 2001
4. US patent no. 5,995,486, issued to Iliadis, Ilias, on Nov. 1999

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai Q. Phan whose telephone number is 703-305-3812.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jean Homere can be reached on 703-308-6647. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

3. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sept. 19, 2004



Thai Phan  
Patent Examiner  
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